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a sensor mounted at a fixed position relative to the housing and positioned adjacent the part spherical surface for detecting the passage of the pattern past the sensor with rotation of the rotor.

8. (amended) A momentum management system according to claim 22, the torque generation device comprising:

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an inner permanent magnet annulus mounted on the rotor, concentric with the rotor axis and with poles spaced apart by a pole spacing dimension along the rotor axis;

an outer permanent magnet annulus mounted on the rotor, concentric with the rotor axis and spaced radially from the inner permanent magnet annulus, with poles spaced apart by the pole spacing dimension along the rotor axis;

a torque coil annulus between the inner and outer permanent magnet annuli and concentric with the drive axis, the torque coil annulus having a core with a dimension axially of the drive axis that is greater than the pole spacing dimension.

12. (amended) A momentum management system according to claim 22 , the torque generation device comprising:

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inner and outer permanent magnet annuli mounted on the rotor, concentric with the rotor axis and spaced apart radially with respect to the rotor axis;

a torque coil annulus between the inner and outer permanent magnet annuli and concentric with the drive axis; and

a ferromagnetic cage mounted on the rotor and surrounding the inner and outer permanent magnet annuli and the torque coil annulus.

Please cancel claims 14 through 20.

A marked up copy of the claims showing the amendments made is attached.